WHAT IS CLAIMED IS:

1. A method of simulating an operation of a logical unit, comprising:

a resource requesting step in which a thread manager, which controls threads each forming an execution unit of a program, makes a request for a hardware resource needed for execution of each of threads representative of a series of functions required until the operation of said logical unit reaches completion according to a design specification of said logical unit, to a resource manager which manages said hardware resource;

a resource allocating step in which said resource manager allocates said hardware resource meeting said request to said thread in accordance with a rule prescribed in advance; and

a thread control step in which said thread manager controls an execution state of said thread in accordance with a result of the allocation made by said resource manager,

said thread manager and said resource manager executing said steps repeatedly in cooperation with each other until the execution of said thread reaches completion, for simulating the operation of said logical unit to be conducted up to the completion.

2. A method of simulating an operation of a logical unit according to claim 1, wherein said series of functions are represented in a plurality of sequential threads.

3. A method of simulating an operation of a logical unit according to claim 1, wherein said series of functions are represented in a plurality of sequential or concurrently executed threads.

4. A method of simulating an operation of a logical unit according to claim 1, wherein a plurality of resource managers each corresponding to said resource manager are provided in conjunction with the types of said hardware resources, and

in said resource allocating step, each of said resource managers allocates said hardware resource, said resource manager manages, to said thread in accordance with a local rule described in advance.

5. A method of simulating an operation of a logical unit according to claim 1, wherein a plurality of resource managers each corresponding to said resource manager are provided in conjunction with the types of said hardware resources and are hierarchized according to the dependence among said hardware resources, and

in said resource allocating step, the hardware resource allocation is made in consideration of the dependence between said hardware resource managed by one of said resource managers manages and said hardware resource managed by the other resource manager lower in hierarchy than the one of said resource managers.

6. A method of simulating an operation of a logical unit according to claim 1, wherein said resource manager monitors resource requests in said resource requesting step to make a decision on a resource request deadlock state among a plurality of threads on a result of the monitoring.

7. A method of simulating an operation of a logical unit according to claim 1, wherein said resource manager monitors read/write requests with respect to said hardware resource allocated by said resource request in said resource requesting step to make a decision on a competition state in read/write operation on said hardware resource among a plurality of threads on the basis of a result of the monitoring.

8. A method of simulating an operation of a logical unit according to claim 1, wherein said resource manager monitors the number of resource requests with respect to said hardware resource to detect a bottleneck on said thread on the basis of a result of the monitoring.

9. A method of simulating an operation of a logical unit according to claim 1, wherein said resource manager monitors the number of resource requests with respect to said hardware resource to detect blocking of said resource requests on the basis of a result of the monitoring.

10. A method of simulating an operation of a logical unit

according to claim 1, wherein said thread has a budget on a time of occupancy of a hardware resource allocated by said resource manager.

11. A method of simulating an operation of a logical unit according to claim 1, wherein said thread has an execution time-limit on said function.

12. A method of simulating an operation of a logical unit, comprising:

a resource requesting step in which a thread manager, which controls threads each forming an execution unit of a program, makes a request for a hardware resource needed for execution of each of a series of threads representative of functions required until the operation of said logical unit reaches completion according to a design specification of said logical unit, to a resource manager which manages said hardware resource;

a resource allocating step in which said resource manager allocates said hardware resource meeting said request to said thread in accordance with a rule prescribed in advance;

a thread control step in which said thread manager controls an execution state of said thread in accordance with a result of the allocation made by said resource manager,

with said thread manager and said resource manager executing said steps repeatedly in cooperation with each other until the execution of said thread reaches completion, for

simulating the operation of said logical unit to be conducted up to the completion,

said method further comprising:

a comparison step of comparing a result of the simulation with an estimated value on said operation of said logical unit; and

an output step of outputting a result of the comparison in said comparison step to an external unit.

13. An apparatus for simulating an operation of a logical unit, comprising:

a thread manager for controlling a thread forming an execution unit of a program; and

a resource manager for managing a hardware resource needed for execution of said thread,

said thread manager including:

resource requesting means for making a request for a hardware resource needed for execution of a thread representative of functions required until the operation of said logical unit reaches completion according to a design specification of said logical unit, to said resource manager; and

thread control means for controlling an execution state of said thread in accordance with a result of a resource allocation made by said resource manager in response to the request from said resource requesting means,

said resource manager including:

resource allocating means for allocating a hardware resource meeting the request to said thread in accordance with a rule prescribed in advance,

said thread manager and said resource manager conducting the resource request and the control of the thread execution state repeatedly in cooperation with each other until the execution of said thread reaches completion, for simulating the operation of said logical unit to be conducted up to the completion.

14. A computer readable recording medium retaining a program for simulation of an operation of a logical unit,

said simulation program making a computer function as a thread manager for controlling threads each forming an execution unit of said program and as a resource manager for managing a hardware resource needed for execution of each of threads, and

said simulation program executing:

a resource requesting step in which said thread manager makes a request for a hardware resource needed for execution of threads representative of a series of functions required until the operation of said logical unit reaches completion according to a design specification of said logical unit, to said resource manager;

a resource allocating step in which said resource manager allocates said hardware resource meeting the request to said thread in accordance with a rule prescribed in advance;

and

a thread control step in which said thread manager controls an execution state of said thread in accordance with a result of the allocation made by said resource manager,

said thread manager and said resource manager executing said steps repeatedly in cooperation with each other until the execution of said thread reaches completion, for simulating the operation of said logical unit to be conducted up to the completion.

15. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 14, wherein a plurality of resource managers each corresponding to said resource manager are provided in conjunction with the types of hardware resources, and

in said resource allocating step, each of said resource managers allocates said hardware resource, said resource manager manages, to said thread in accordance with a local rule described in advance.

16. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 14, wherein a plurality of resource managers each corresponding to said resource manager are provided in conjunction with the types of hardware resources and are hierarchized according to the dependence among said hardware resources, and

in said resource allocating step, the hardware resource allocation is made in consideration of the dependence between said hardware resource managed by one of said resource managers and said hardware resource managed by the other resource manager lower in hierarchy than the one of said resource managers.

17. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 14, wherein said resource manager monitors resource requests in said resource requesting step to make a decision on a resource request deadlock state among a plurality of threads on a result of the monitoring.

18. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 14, wherein said resource manager monitors read/write requests with respect to said hardware resource allocated by said resource request in said resource requesting step to make a decision on a competition state in read/write operation on said hardware resource among a plurality of threads on the basis of a result of the monitoring.

19. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 14, wherein said resource manager monitors the number of resource requests with respect to said hardware resource

to detect a bottleneck on said thread on the basis of a result of the monitoring.

20. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 14, wherein said resource manager monitors the number of resource requests with respect to said hardware resource to detect blocking of said resource requests on the basis of a result of the monitoring.

21. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 14, wherein said thread has a budget on a time of occupancy of a hardware resource allocated by said resource manager.

22. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 14, wherein said thread has an execution time-limit on said function.

23. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 14, wherein said series of functions are represented in a plurality of sequential threads.

24. A computer readable recording medium retaining a program

for simulation of an operation of a logical unit according to claim 23, wherein a plurality of resource managers each corresponding to said resource manager are provided in conjunction with the types of hardware resources, and

in said resource allocating step, each of said resource managers allocates said hardware resource, said resource manager manages, to said thread in accordance with a local rule described in advance.

25. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 23, wherein a plurality of resource managers each corresponding to said resource manager are provided in conjunction with the types of hardware resources and are hierarchized according to the dependence among said hardware resources, and

in said resource allocating step, the hardware resource allocation is made in consideration of the dependence between said hardware resource managed by one of said resource managers and said hardware resource managed by the other resource manager lower in hierarchy than the one of said resource managers.

26. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 23, wherein said resource manager monitors resource requests in said resource requesting step to make a decision

on a resource request deadlock state among a plurality of threads on a result of the monitoring.

27. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 23, wherein said resource manager monitors read/write requests with respect to said hardware resource allocated by said resource request in said resource requesting step to make a decision on a competition state in read/write operation on said hardware resource among a plurality of threads on the basis of a result of the monitoring.

28. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 23, wherein said resource manager monitors the number of resource requests with respect to said hardware resource to detect a bottleneck on said thread on the basis of a result of the monitoring.

29. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 23, wherein said resource manager monitors the number of resource requests with respect to said hardware resource to detect blocking of said resource requests on the basis of a result of the monitoring.

30. A computer readable recording medium retaining a program

for simulation of an operation of a logical unit according to claim 23, wherein said thread has a budget on a time of occupancy of a hardware resource allocated by said resource manager.

31. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 23, wherein said thread has an execution time-limit on said function.

32. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 14, wherein said series of functions are represented in a plurality of sequential or concurrently executed threads.

33. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 32, wherein a plurality of resource managers each corresponding to said resource manager are provided in conjunction with the types of hardware resources, and

in said resource allocating step, each of said resource managers allocates said hardware resource, said resource manager manages, to said thread in accordance with a local rule described in advance.

34. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according

to claim 32, wherein a plurality of resource managers each corresponding to said resource manager are provided in conjunction with the types of hardware resources and are hierarchized according to the dependence among said hardware resources, and

in said resource allocating step, the hardware resource allocation is made in consideration of the dependence between said hardware resource managed by one of said resource managers and said hardware resource managed by the other resource manager lower in hierarchy than the one of said resource managers.

35. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 32, wherein said resource manager monitors resource requests in said resource requesting step to make a decision on a resource request deadlock state among a plurality of threads on a result of the monitoring.

36. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 32, wherein said resource manager monitors read/write requests with respect to said hardware resource allocated by said resource request in said resource requesting step to make a decision on a competition state in read/write operation on said hardware resource among a plurality of threads on the basis of a result of the monitoring.

37. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 32, wherein said resource manager monitors the number of resource requests with respect to said hardware resource to detect a bottleneck on said thread on the basis of a result of the monitoring.

38. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 32, wherein said resource manager monitors the number of resource requests with respect to said hardware resource to detect blocking of said resource requests on the basis of a result of the monitoring.

39. A computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 32, wherein said thread has a budget on a time of occupancy of a hardware resource allocated by said resource manager.

40. computer readable recording medium retaining a program for simulation of an operation of a logical unit according to claim 32, wherein said thread has an execution time-limit on said function.

41. A computer readable recording medium retaining a program

for simulation of an operation of a logical unit,

said simulation program making a computer execute:

a resource requesting step in which a thread manager, which controls threads each forming an execution unit of a program, makes a request for a hardware resource needed for execution of each of threads representative of functions required until the operation of said logical unit reaches completion according to a design specification of said logical unit, to a resource manager which manages said hardware resource;

a resource allocating step in which said resource manager allocates said hardware resource meeting said request to said thread in accordance with a rule prescribed in advance;

a thread control step in which said thread manager controls an execution state of said thread in accordance with a result of the allocation made by said resource manager,

said thread manager and said resource manager executing said steps repeatedly in cooperation with each other until the execution of said thread reaches completion, for simulating the operation of said logical unit to be conducted up to the completion, and

said method further comprising:

a comparison step of comparing a result of the simulation with an estimated value on said operation of said logical unit; and

an output step of outputting a result of the comparison in said comparison step to an external unit.